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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,922	03/07/2001	Todor J. Fay	MS1-723US	3430

22801 7590 11/21/2005

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EXAMINER	
SELLERS, DANIEL R	
ART UNIT	**PAPER NUMBER**
2644	

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/801,922	FAY ET AL.	
	Examiner	Art Unit	
	Daniel R. Sellers	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-14, 16-20, 22-24, 26-44, 46, 47, 49, and 52-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura, U.S. Patent 5,942,707, and further in view of Brooks et al. (Brooks), U.S. Patent 5,842,014.

3. Regarding amended claim 1, see Tamura,

A method, comprising:
receiving audio content from one or more sources; (Col. 6, lines 13-17).
providing an audio content component for each source of audio content, each audio content component generating event instructions from the received audio content; (Col. 4, lines 5-7).
processing the event instructions to produce audio instructions; (Col. 4, lines 9-12).
providing rendition managers that each correspond to an audio rendition; and (Col. 4, lines 46-48).
routing the audio instructions to the audio rendition managers that process the audio instructions to render the corresponding audio renditions. (Col. 4, lines 50-52).

Tamura teaches a method of generating audio in the above manner, wherein Tamura uses the phrase "sound source" to designate the audio rendition component. The sound source is a piece of hardware or software, which generates audio given the audio instructions (Col. 6, lines 47-49). Tamura does not teach a plurality of audio rendition components, but teaches that the audio rendition manager can be a hardware component with a DSP chip. A DSP is a synthesizer component, and Tamura teaches that the DSP performs the audio rendition given the proper audio instructions. Brooks teaches a system that uses multiple DSP (digital signal processors) or multiple

processors to achieve maximum efficiency and flexibility. Brooks teaches that tasks can be divided among multiple processors, or rendition managers (Col. 4, lines 29-32), and that each processor can individually perform a specific task or set of tasks in a DAW (digital audio workstation) (Col. 1, lines 15-65 and Col. 4, lines 13-62). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Tamura and Brooks for the purpose of creating a flexible and extensible system for rendering audio for a plurality of channels.

4. Regarding claim 2, the further limitation of claim 1, see Tamura,

... wherein each audio content component is a component object having an interface that is callable by a software component, the software component directing said generating the event instructions. (Col. 1, lines 26-31).

Tamura teaches that the hardware and software implementations are analogous, and Brooks teaches that the multiple processors can be called to perform a specific task or set of tasks. It is inherent that the processors are callable by software.

5. Regarding amended claims 3 and 4, see the above rejections of claim 2. The combination teaches the audio rendition managers.

6. Regarding amended claim 5, the further limitation of claim 1, see Tamura,

... further comprising providing a performance manager that performs said providing an audio content component for each source of audio content, and performs said providing the audio rendition managers that each correspond to an audio rendition. (Col. 19, lines 61-64 and Col. 6, lines 28-32).

Tamura teaches the use of software to instantiate a plurality of audio rendition managers, and Brooks teaches the use of multiple rendition managers, or processors dedicated to specific tasks. Brooks also teaches a performance manager (Col. 4, lines 47-49).

7. Regarding amended claim 6, the further limitation of claim 1, see the above rejection of claims 5 and 2. The combination teaches these features.

8. Regarding amended claim 7, the further limitation of claim 1, see the above rejection of claim 1. The combination teaches a system that performs all the steps of claim 1, and Tamura also states that the task can be performed using either software or hardware.

9. Regarding claim 8, the further limitation of claim 1, see the above rejection of claim 1. The combination teaches a system that performs all the steps of claim 1, and Tamura provides an audio content for the source of audio.

10. Regarding amended claim 9, the further limitation of claim 1, see the above rejection of claim 1. The combination provides a performance manager, which performs the steps as shown in claim 1.

11. Regarding claim 10, the further limitation of claim 1, see Brooks

... wherein the audio content includes digital audio samples. (Col. 4, lines 22-25).

Brooks teaches the use of processing digital audio and the combination teaches the features of the parent claim.

12. Regarding claim 11, the further limitation of claim 1, see Tamura,

... wherein the audio content includes MIDI data. (Col. 6, lines 25-28).

Tamura teaches audio content, which is MIDI data.

13. Regarding claims 12 and 13, the further limitations of claim 1, see Tamura

... wherein each audio content component has one or more event instruction components that perform said generating the event instructions. AND
... wherein each audio content component has one or more event instruction components that perform said generating the event instructions, each event instruction component corresponding to part of the received audio content. (Col. 4, lines 5-7)

Tamura teaches an audio content component that inherently has instruction components, since it generates the event instructions and writes them to a memory location.

14. Regarding amended claim 14, the further limitation of claim 1, see Tamura

... further comprising each audio content component generating event instructions and routing the event instructions to the one or more audio rendition managers before said processing the event instructions. (Col. 4, lines 9-12).

Tamura teaches that the event instructions are placed in a second memory location. The audio rendition manager uses this information before processing.

15. Regarding amended claim 16 and original claim 17, the further limitations of claim 1, see Tamura,

... wherein the audio rendition managers receive audio instructions originating as event instructions from one or more of the audio content components. AND
... wherein one audio rendition manager receives audio instructions originating as event instructions from one or more of the audio content components. (Col. 4, lines 18-22).

Tamura teaches the generation of the audio instructions from the event instructions, and teaches the use of the audio instructions in the audio rendition manager.

16. Regarding claim 18, the further limitation of claim 1, see Tamura,

... wherein said providing an audio rendition manager comprises providing a synthesizer component, the method further comprising processing the audio instructions with the synthesizer component to render the corresponding audio rendition. (Col. 6, lines 47-51).

Tamura teaches that the audio rendition manager can be a hardware component with a DSP chip. A DSP is a synthesizer component, and Tamura teaches that the DSP performs the audio rendition given the proper audio instructions.

17. Regarding claim 19, the further limitation of claim 1, see the above rejection of claim 18, and see Tamura,

... wherein said providing an audio rendition manager comprises providing a synthesizer component and audio wave data consumers, the method further comprising processing the audio instructions with the synthesizer component to generate audio wave data, and routing the audio wave data to the audio wave data consumers. (Col. 4, lines 22-23).

Tamura teaches the use of a DSP chip, which processes the audio instructions. Then the output of this audio rendition manager is sent to a memory location.

18. Regarding claim 20, the further limitation of claim 1, see the above rejection of claim 19, and see Tamura,

... wherein said providing an audio rendition manager comprises:
providing a synthesizer component; providing audio wave data consumers;
defining logical buses that each correspond to one of the audio wave data consumers; (Col. 8, lines 43-48).
the method further comprising: processing the audio instructions with the synthesizer component to generate multiple streams of audio wave data; (Col. 4, lines 46-47).
assigning each of the multiple streams of audio wave data to one or more of the logical buses; and routing audio wave data streams assigned to a particular logical bus to the audio wave data consumer corresponding to said particular logical bus. (Col. 4, lines 22-23).

Tamura teaches the use of a synthesizer component, as shown above in the rejection of claim 19.

19. Regarding claim 22, the further limitation of claim 1, see Tamura,

One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 1. (Col. 6, lines 28-32, and lines 36-39).

Tamura teaches the use of computer-readable medium comprising of computer-executable instructions.

20. Regarding claim 23, the further limitation of claim 7, see the above rejection of claim 22. Tamura teaches the use of a computer-readable medium.

21. Regarding claim 24, the further limitation of claim 20, see the above rejections of claims 19 and 22. Tamura teaches these features.

22. Regarding amended claim 26, see the above rejections of claims 1, 5, 18, and 19. The combination teaches all these features.

23. Regarding claim 27, the further limitation of claim 26, see the above rejection of claim 6. Tamura teaches that software and hardware are analogous.

24. Regarding claims 28 and 30, the further limitations of claim 26, see the above rejection of claim 7.

25. Regarding claim 29, the further limitation of claim 26, see the above rejection of claim 3.

26. Regarding amended claim 31, the further limitation of claim 26, see the above rejection of claim 5 and 7.

27. Regarding claim 32, the further limitation of claim 26, see the above rejection of claim 10.

28. Regarding claim 33, the further limitation of claim 26, see the above rejection of claim 11.

29. Regarding claim 34, the further limitation of claim 26, see the above rejection of claim 12.

30. Regarding claim 35, the further limitation of claim 26, see the above rejections of claims 12 and 22.

31. Regarding amended claim 36, the further limitation of claim 26, see the above rejection of claim 14.

32. Regarding amended claim 37, the further limitation of claim 26, see the above rejection of claim 1.

33. Regarding amended claim 38, the further limitation of claim 26, see the above rejection of claim 16.

34. Regarding claim 39, the further limitation of claim 26, see the above rejection of claim 17.

35. Regarding claim 40, the further limitation of claim 26, see the above rejections of claims 1, 2, 18, and 26. The combination teaches these features, and states that software and hardware, which perform the same function, are analogous.

36. Regarding claim 41, the further limitation of claim 26, see the above rejection of claims 1, 18, and 26. The combination teaches the DSP chip, which is interchangeable with software, and it is known in the art of signal processing that a DSP chip has callable functions, such as multiplication, division, addition, subtraction, and delay. These callable functions are used in synthesizing the audio from the audio instructions.

37. Regarding claim 42, the further limitation of claim 26, see Tamura,

... wherein the one or more audio wave data consumers are audio buffers provided as component objects, each audio buffer having an interface that is callable by a software component. (Col. 6, lines 19-24).

Tamura teaches the use of output buffers, which is callable by the connected peripherals through the CPU bus (Fig. 1).

38. Regarding claim 43, the further limitation of claim 26, see the above rejection of claim 31 and Tamura,

... wherein each audio rendition manager is a component object, and wherein the one or more audio wave data consumers are audio buffers provided as component objects, each audio buffer having an interface that is callable by the audio rendition manager providing the audio buffer. (Col. 7, lines 22-26).

Tamura teaches an audio buffer that is callable by the audio rendition manager.

39. Regarding claim 44, the further limitation of claim 26, see the above rejection of claim 20.

40. Regarding claim 46, the further limitation of claim 26, see the above rejection of claim 22.

41. Regarding claim 47, the further limitation of claim 31, see the above rejections of claims 7 and 22.

42. Regarding amended claim 49, see the rejections of claim 26. Tamura teaches an audio generation system.

43. Regarding claim 52, the further limitation of claim 49, see the above rejection of claim 27.

44. Regarding claims 53 and 54, the further limitations of claim 49, see the above rejection of claim 28. Tamura teaches that the performance manager can be software.

45. Regarding claim 55, the further limitation of claim 49, see the above rejection of claim 30.

46. Regarding claims 56 and 57, the further limitation of claim 49, see the above rejection of claim 26.

47. Regarding claim 58, the further limitation of claim 49, see the above rejection of claim 44.

48. Claims 21, 25, 45, 48, 50, 51, 59-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura and Brooks as applied to claim 1 above, and further in view of Su et al. (Su), U.S. Patent 5,852,251.

49. Regarding claim 21, the further limitation of claim 1, see Brooks,

... wherein said providing an audio rendition manager comprises:
providing a synthesizer component having multiple channel groups, each channel group having a plurality of synthesizer channels to receive the audio instructions; (Col. 4, lines 47-49).
providing a mapping component having mapping channels corresponding to the plurality of synthesizer channels; (Col. 7, lines 23-26).
providing audio wave data consumers; defining logical buses that each correspond to one of the audio wave data consumers;
the method further comprising:
assigning the mapping channels to receive the audio instructions;
routing the audio instructions to a particular synthesizer channel in accordance with the mapping channel assignments; (Col. 6, lines 5-9).
processing the audio instructions with the synthesizer component to generate multiple streams of audio wave data; (Col. 7, lines 19-22).
assigning each of the multiple streams of audio wave data to one or more of the logical buses; and
routing audio wave data streams assigned to a particular logical bus to the audio wave data consumer corresponding to said particular logical bus.

Brooks teaches a method of distributing processes among several DSP chips. Brooks does not teach a system, which processes event information, however Brooks does teach the use of this system with digital audio data. Brooks also does not teach channel grouping as claimed above. Tamura teaches a tone generation system, which processes music event data and provides a synthesizer to synthesize the audio wave output. Tamura teaches that software synthesizers can be used in place of hardware synthesizers. He does not specifically teach that two software synthesizers can be used concurrently, however one skilled in the art can envision similar software modules concurrently running on any multi-tasking operating system. Tamura, also, does not teach channel grouping. Su teaches a method of real-time midi control and teaches that MIDI channels can be grouped in several groups to save processing time of event information that is shared across channels (Col. 2, line 65 – Col. 3, line 4). It would have been obvious to one of ordinary skill in the art to combine the teachings of

Tamura, Brooks, and Su for the purpose of better management of processing resources.

50. Regarding claims 25 and 48, the further limitations of claim 21, see the above rejection of claim 22.

51. Regarding claim 45, the further limitation of claim 26, see the above rejection of claim 21.

52. Regarding claims 50 and 51, the further limitations of claim 49, see the above rejection of 21. Brooks teaches the use of a plurality of audio rendition managers, and teaches that they are used concurrently (Col. 4, lines 19-21).

53. Regarding claim 59, the further limitation of claim 49, see the above rejections of claims 21 and 58.

54. Regarding claim 60, the further limitation of claim 49, see the above rejections of claims 21, 22, and 58.

55. Regarding amended claim 61, see the above rejections of claims 21 and see Tamura,

An audio rendition manager, comprising:
a synthesizer component having channel groups that each have a plurality of synthesizer channels configured to receive audio instructions and produce one or more streams of audio wave data from the received audio instructions; and
a plurality of audio buffers that receive one or more of the streams of audio wave data. (Col. 3, lines 45-47).

Tamura teaches the use of an audio buffer for each channel and Su teaches the grouping of channels into channel groups.

56. Regarding amended claim 62, the further limitation of claim 61, see the above rejections of claims 21, Tamura teaches that a synthesizer that has a plurality of channels (Col. 4, lines 46-47), and Su teaches grouping channels.

57. Regarding claim 63, the further limitation of claim 61, see the above rejection of claim 21. Tamura teaches the mapping of channels.

58. Regarding amended claim 64, the further limitation of claim 61, see the above rejections of claim 62 and 63. It would have been obvious to extend the assignment of channels, as taught by Tamura, for an extra synthesizer, which is taught by Brooks.

59. Regarding claim 65, the further limitation of claim 61, see the above rejection of claim 64.

60. Regarding claim 66, the further limitation of claim 61, see the above rejection of claim 61. Tamura teaches the plurality of buffers, and controls the assignment of these buffers to a plurality of channels. Brooks teaches the method of time division multiplexing (TDM) for creating up to 256 logical buses (Col. 6, lines 5-9).

61. Regarding claim 67, the further limitation of claim 61, see the above rejection of claims 65 and 66. The combination of Tamura, Brooks, and Su teaches these features.

62. Regarding claim 68, the further limitation of claim 61, see the above rejections of claims 8 and 61. The combination teaches these features.

63. Regarding amended claim 69, the further limitation of claim 61, see the above rejections of claims 65 and 68. The combination teaches these features.

Response to Arguments

64. Applicant's arguments with respect to claims 1-14 and 16-69 have been considered but are moot in view of the new ground(s) of rejection.

65. See the above rejections with respect to 35 USC 103. The combinations of Tamura and Brooks and Su teach the features of the claimed invention.

Conclusion

66. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maher et al., U.S. Pat. No. 6,301,603.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached on Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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